UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

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MEMORANDUM

SUBJECT: Review of Propargite Incident Reports
DP Barcode D261208, Chemical #097601

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BACKGROUND

The following data bases have been consulted for the poisoning incident data on the active ingredient Propargite (PC Code:097601):

1) OPP Incident Data System (IDS) - reports of incidents from various sources, including registrants, other federal and state health and environmental agencies and individual consumers, submitted to OPP since 1992. Reports submitted to the Incident Data System represent anecdotal reports or allegations only, unless otherwise stated. Typically no conclusions can be drawn implicating the pesticide as a cause of any of the reported health effects. Nevertheless, sometimes with enough cases and/or enough documentation risk mitigation measures may be suggested.

2) Poison Control Centers - as the result of a data purchase by EPA, OPP received Poison Control Center data covering the years 1993 through 1996 for all pesticides. Most of the national Poison Control Centers (PCCs) participate in a national data collection system, the Toxic

Exposure Surveillance System which obtains data from about 65-70 centers at hospitals and universities. PCCs provide telephone consultation for individuals and health care providers on suspected poisonings, involving drugs, household products, pesticides, etc.

3) California Department of Food and Agriculture (replaced by the Department of Pesticide Regulation in 1991) - California has collected uniform data on suspected pesticide poisonings since 1982. Physicians are required, by statute, to report to their local health officer all occurrences of illness suspected of being related to exposure to pesticides. The majority of the incidents involve workers. Information on exposure (worker activity), type of illness (systemic, eye, skin, eye/skin and respiratory), likelihood of a causal relationship, and number of days off work and in the hospital are provided.

4) National Pesticide Telecommunications Network (NPTN) - NPTN is a toll-free information service supported by OPP. A ranking of the top 200 active ingredients for which telephone calls were received during calendar years 1984-1991, inclusive has been prepared. The total number of calls was tabulated for the categories human incidents, animal incidents, calls for information, and others.

PROPARGITE REVIEW

I. Incident Data System

Please note that the following cases from the IDS do not have documentation confirming exposure or health effects unless otherwise noted.

Incident#1280-23

A pesticide incident occurred in 1994, when a spray applicator got the chemical in his eyes. Specific symptoms were not mentioned. No further information on the disposition of the case was reported.

Incident#4066-12

A pesticide incident occurred in California in 1996, when 49 field workers lifted canes in grape fields that were wet with dew. Many of the workers clothes became soaking wet and they experienced burning, itching, and a rash on their arms, neck, chest, and stomach. From information collected by the Agricultural Commissioner's staff it appeared that the label was followed. According to application records, there was compliance with the re-entry interval of 30 days. Results from analysis of foliage samples confirmed residues of propargite on the grape foliage. All of these workers were seen at the primary medical care center. No further information on the disposition of the case was reported.

Incident#5995-1

A pesticide incident occurred in 1997, when five workers experienced skin and eye irritations after formulating and packaging a chemical which was caused by abnormally high levels of dust being generated in the pack-room. No further information on the disposition of the case was reported.

Incident#7346-1

A pesticide incident occurred in 1985, when a worker was inadvertently drenched with spray from an air blast sprayer used to treat a grape vineyard. The worker experienced vomiting within thirty minutes and later developed chronic asthma and other respiratory problems. These symptoms were not consistent with exposure to propargite and there may have been exposure to a second pesticide that was responsible for these symptoms. No further information on the disposition of the case was reported.

II. Poison Control Center Data - 1993 through 1996

From 1993 through 1996 there were 62 exposures to propargite reported to Poison Control Centers participating in the Toxic Exposure Surveillance System. A total of 40 of these exposures were reported to be non-occupational including 33 adults and children six years old and over and 7 children under age six. Twenty-two cases of exposure were reported to be occupationally related. Twenty-one of these cases occurred in California and therefore may also be reported in the section below concerning California data. No detailed analysis is performed because there were too few cases in any one category. Of the total cases 23 were reported to have a minor medical outcome and 3 cases were reported to have a moderate medical outcome. There were no fatalities or life-threatening cases. The most common symptoms reported included nausea, oral irritation, chest pain, dizziness, headache, and eye and dermal effects. A total of 25 of these cases were seen in a health care facility, however, none were admitted for hospitalization. Compared to all other pesticides, propargite has a favorable profile suggesting low risk of moderate or serious effects.

III. California Data - 1982 through 1996

Detailed descriptions of 923 cases submitted to the California Pesticide Illness Surveillance Program (1982-1996) were reviewed. In 671 of these cases, propargite was used alone and was judged to be responsible for the health effects. Only cases with a definite, probable or possible relationship were reviewed. Propargite ranked 44th as a cause of systemic poisoning in California for the years 1982-1994. All of the systemic cases reported in this period were in an agricultural setting with roughly one-third occurring among handlers and two-thirds among field workers.

Table 1 presents the types of illnesses reported by year for the time period 1982 through 1996. Table 2 gives the total number of workers that took time off work as a result of their illness and how many were hospitalized and for how long.

Table 1. Cases Due to Propargite Exposure in California Reported by Type of Illness and Year, 1982-1996.

Year	Illness Type				
	Systemic[b]	Eye	Combination.[c]	Skin	Total
1982	2	9	2	40	53
1983	6	18	5	24	53
1984	3	13	4	63	83
1985	1	9	-	37	47
1986	-	7	1	143	151
1987	1	5	4	25	35
1988	3	7	-	81	91
1989	3	3	-	6	12
1990	5	4	1	7	17
1991	-	3	-	3	6
1992	-	5	-	15	20
1993	2	4	-	4	10
1994	3	2	1	5	11
1995	2	-	-	70	72
1996	2	2	1	5	10
Total	33	91	19	528	671

[b] Category includes cases where skin, eye, or respiratory effects were also reported.
[c] Category includes combined irritative effects to eye, skin, and respiratory system.

Table 2. Number of Persons Disabled (taking time off work) or Hospitalized for Indicated Number of Days After Propargite Exposure in California, 1982-1996.

	Number of Persons Disabled	Number of Persons Hospitalized

One day	55	-
Two days	25	-
3-5 days	50	-
6-10 days	18	-
more than 10 days	4	-
Unknown	161	5

A total of 528 persons had skin illnesses or 79% of 671 persons. Data covering the years 1982-1989 found that propargite was the leading cause of skin-related injuries among all pesticides. For the years 1990-1994, propargite dropped to seventh place among specific active ingredients. Worker activities associated with exposure to propargite are presented in Table 3 below.

Table 3. Illnesses by Activity Categories for Propargite Exposure in California, 1982-1996.

Activity Category	Illness Category				
	Systemic[b]	Eye	Skin	Combination[c]	Total
Applicator	7	45	64	10	126
Mixer/Loader	3	22	35	4	64
Coincidental	2	4	9	2	17
Field Residue	13	14	411	3	441
Drift	5	-	3	-	8
Other	2	6	7	-	15
Total	32	91	529	19	671

[a] Coincidental=accidental exposure to application strength dilution but not directly involved in pesticide handling activity; Drift= exposure to pesticide that has drifted from intended targets.
[b] Category includes cases where skin, eye, or respiratory effects were also reported
[c] Category includes combined irritative effects to eye, skin, and respiratory system

According to the above activity categories, field residue was associated with the majority (66%) of the exposures. These illnesses included symptoms of chest tightness, shortness of breath, headache, sore throat, coughing, dermatitis, rash on arms, neck, chest and eyes, and eye irritation. In 1988, 26 workers harvesting nectarines developed rashes in orchards treated with

propargite and two other pesticides. Samples of foliar dislodgeable residues suggested that propargite was the cause of the dermatitis cases.

Dermatitis developed in 114 orange pickers in a single incident in 1986. One-third of the workers developed peeling indicating severe dermatitis (Saunders et al. 1987). As a result of this and other large outbreaks the reentry interval was extended from 2-7 days (depending on crop) to 14-42 days in 1989 resulting in a significant reduction in propargite-related illness (Mehler et al. 1992).

IV. National Pesticide Telecommunications Network

On the list of the top 200 chemicals for which NPTN received calls from 1984-1991 inclusively, propargite was ranked 116th with 28 incidents in humans reported and 3 incidents in animals (mostly pets).

VI. Conclusions

According to California data, it appears that a majority of cases involved skin illnesses some of which can be quite severe requiring extensive time off work to recover. A large proportion of cases resulted from field reentry and worker activities involving extensive contact with treated foliage such as turning cane for grapes and harvesting citrus. Both eye and skin problems are commonly reported among applicators who handle propargite without proper protection.

VII. Recommendations

Appropriate personal protection equipment such as the use of gloves and eye protection should be mandatory for handlers and field workers who may have extensive exposure to propargite. Extended reentry intervals are needed to protect workers who do not use personal protective equipment, particularly in climates where propargite may persist on foliage for several weeks.

VIII. References

Mehler LN, O'Malley MA, Krieger RI. 1992. Acute pesticide morbidity and mortality: California. Review of Environmental Contamination and Toxicology 129:51-66.

Saunders LD, Ames RG, Knaak JB, Jackson RJ. 1987. Outbreak of Omite-CR-induced dermatitis among orange pickers in Tulare County, California. Journal of Occupational Medicine 29:409-413.

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